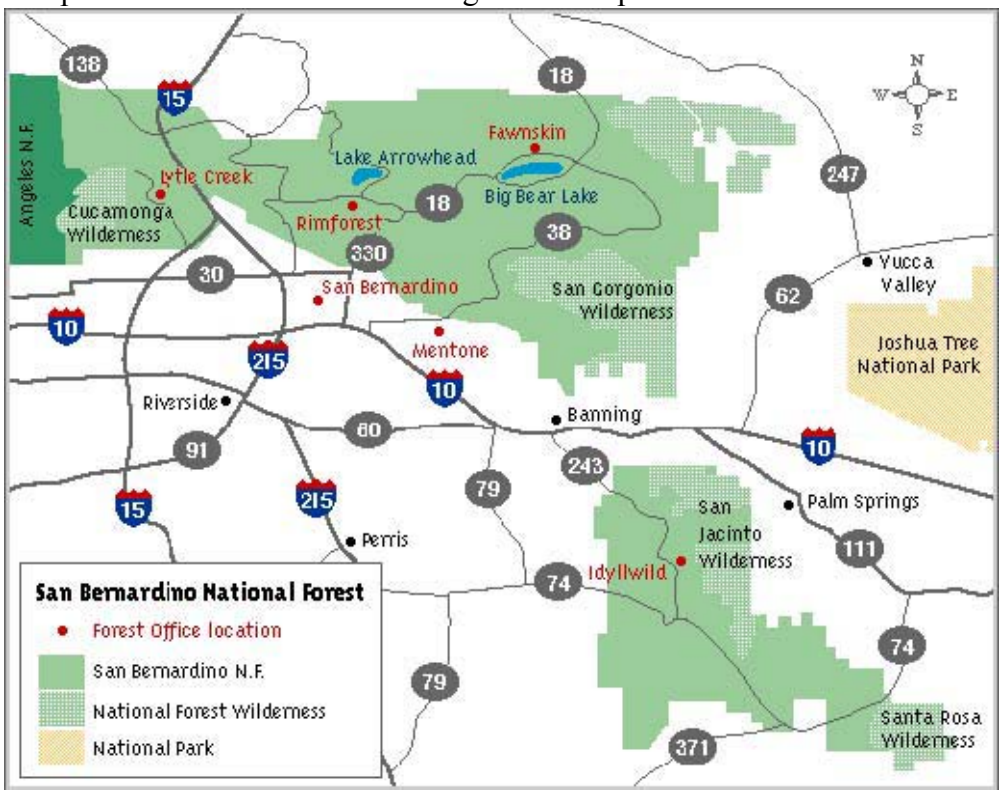
**Statement of**
**P. Joseph Grindstaff, General Manager**
**Santa Ana Watershed Project Authority**
**before the**
**Committee on Resources**
**U.S. House of Representatives**

**September 22, 2003**

Chairman Pombo, and members of the Committee on Resources, thank you for providing me this opportunity to address the potential watershed impacts to the Santa Ana Watershed from a significant forest burn in the San Bernardino National Forest. Over the long-term, it is crucial that we take steps to protect our forests from the kind of situation we face here. I also thank you for addressing the suitability of a federal grants program, which would minimize damage impacts of fire to the area and to increase the potential for fire control, life and property protection and a reduction in habitat loss.

**Background**

The Santa Ana Watershed derives a majority of the water for over 5 million people from the rainfall in and around the San Bernardino, San Gorgonio and San Jacinto Mountains' forest areas. Rainfall in these mountainous areas provides surface water flows and groundwater recharge throughout the region. Impacts to these areas will have significant impacts on the Santa Ana River and its watershed water quality. The last several years have seen significantly decreased rainfall and resultant drought conditions in these forests. This drought stress has made the forest susceptible to infestation by the Pine Bark Beetle, a serious pest of conifers. This combination of factors has resulted in large-scale mortality of trees in the area



and the presence of an enormous source of combustible material. Fires in these areas are likely to be large and difficult to contain; the aftermath of any fire events will have extraordinary impact on the forest and the watershed.

The purpose of this summary is to document the significance of the likely damage to the forests, water quality, flood management, and related issues that require planning, monitoring and funding in the watershed. Impacts from large fires in isolated forest areas will be felt in areas far from the location of the fire and many of these costs will be borne by local government.

Fuel loads in the area of Lake Arrowhead and Big Bear Lake are extraordinarily high due to forest and private property management practices in these urban forest areas. Air and ground surveillance in January 2003, found over 171,000 total acres of forest area have significant tree mortality of which 70,000 acres are privately owned. Estimates by California Department of Forestry officials indicate over 180,000 acres are estimated to be at these levels. Mortality at these levels over such a large area and the resulting dry, standing timber will lead to high likelihood of uncontrollable fire situations in the forest above the watershed. It is now estimated that over 350,000 acres have been attacked by the beetle.

**Threat**

A likely burn risk scenario for this summer could include as much as 180,000 acres. This large impact to the forest would cause significant impacts to the watershed's water quality and flood management capability. These impacts will be apparent at the site of the fire and in the communities occupying the lower parts of the watershed. The impacts of this unusually high magnitude fire are estimated below.

Estimating the water quality impacts of a large burn are difficult but some research indicates this is a dire situation if winter rains are normal or heavy. Bureau of Land Management and Forest Service EIR's filed for controlled burn management, Forest Service research publications, Los Angeles County Flood control plans, impact history from the Heyman fire in Colorado and personal communications with Riverside Fire Lab personnel document the following impacts from ash runoff water from areas of burns:

1. A significant increase in total runoff and peak storm flows, more rapid snow melt and decreased snow pack;

2. Catastrophic increases in sediment and water turbidity from 30-to-50 times the normal expected debris flows with fine sediment carried far down stream;

3. Doubling or greater increases in total dissolved and suspended solids from even small burn areas;

4. Significant increases in nutrients loading, primarily nitrates and phosphorus formerly bound in soil and from prior airborne deposition in some areas where ground and surface waters already exceed Federal standards for these pollutants;

5. In cases where foundation rocks contain radionuclides, increases in Gross Alpha and Beta were observed; the headwaters of the Santa Ana River were home to a small Uranium mine and transport of uranium and its radiological progeny downstream in to near surface water is well documented;

6. Increases in organics, including toxic organics and carcinogenic compounds from partial combustion of forest materials and the transport of these compounds downstream to urban areas;

7. And, significant stress to forest species and to endangered and threatened species in the Santa Ana River and its tributaries; this would include the Federally-protected San Bernardino kangaroo rat, the threatened Santa Ana sucker fish and the Santa Ana wooly star.

**Impacts**

These documented impacts will be expressed following any large fire in the Santa Ana Watershed. These impacts when estimated from a likely burn scenario for the fire season of 2003 or 2004 could result in the following:

1. Total runoff is likely to increase by more than 10% and peak storm flows increases about 5 times the average to between 200,000 and 300,000 cubic feet per second. This is also likely to be exacerbated by more rapid snow melt;

2. Sediment loads carried downstream could 30 to 50 times normal taking an estimated 1.7 billion cubic yards of rock, sand, and debris into control structures and dams. The quantity of this material could take months or years to remove;

3. Long duration increases in water turbidity with fine sediment may be carried far down stream complicating groundwater recharge efforts;

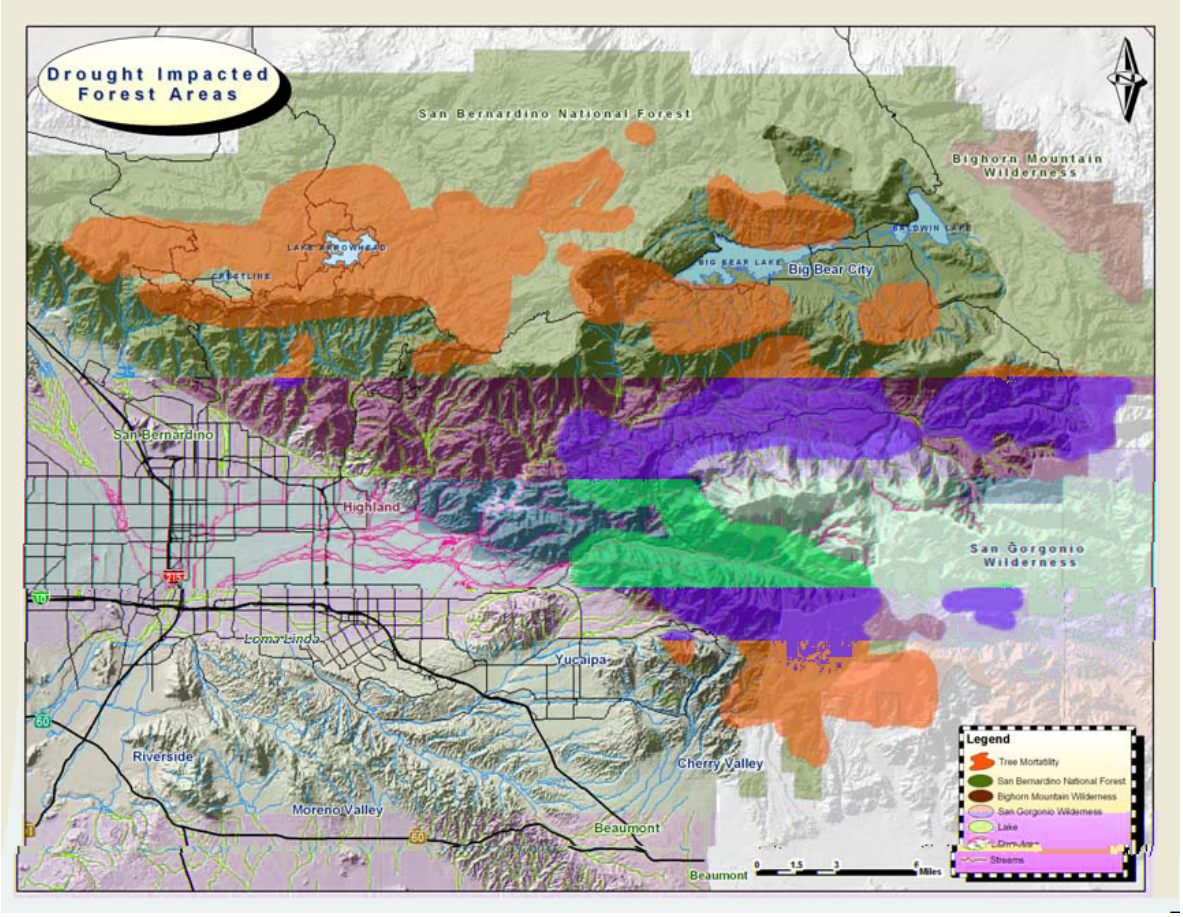
4. A 2-10 fold increase in dissolved solids (TDS) or salts with increased flows could result in as much as 500,000 tons of added salt in the river and groundwater basins. Runoff water is needed for recharge or consumptive use, significant treatment requirements to remove or mitigate this TDS;

5. As much as 20,000 tons of nutrients nitrates and phosphorus formerly bound in soil and from prior airborne deposition released into the peak stormflows and eventually making its way into the groundwater in the first few years;

6. Significant transport of uranium and its radiological progeny downstream in surface waters and into near surface groundwater increasing the cost of radon treatment and future monitoring;

7. Increases in organics, including toxic organics and carcinogenic compounds from partial combustion of forest materials that will decrease the usability of one of this region's primary water sources;

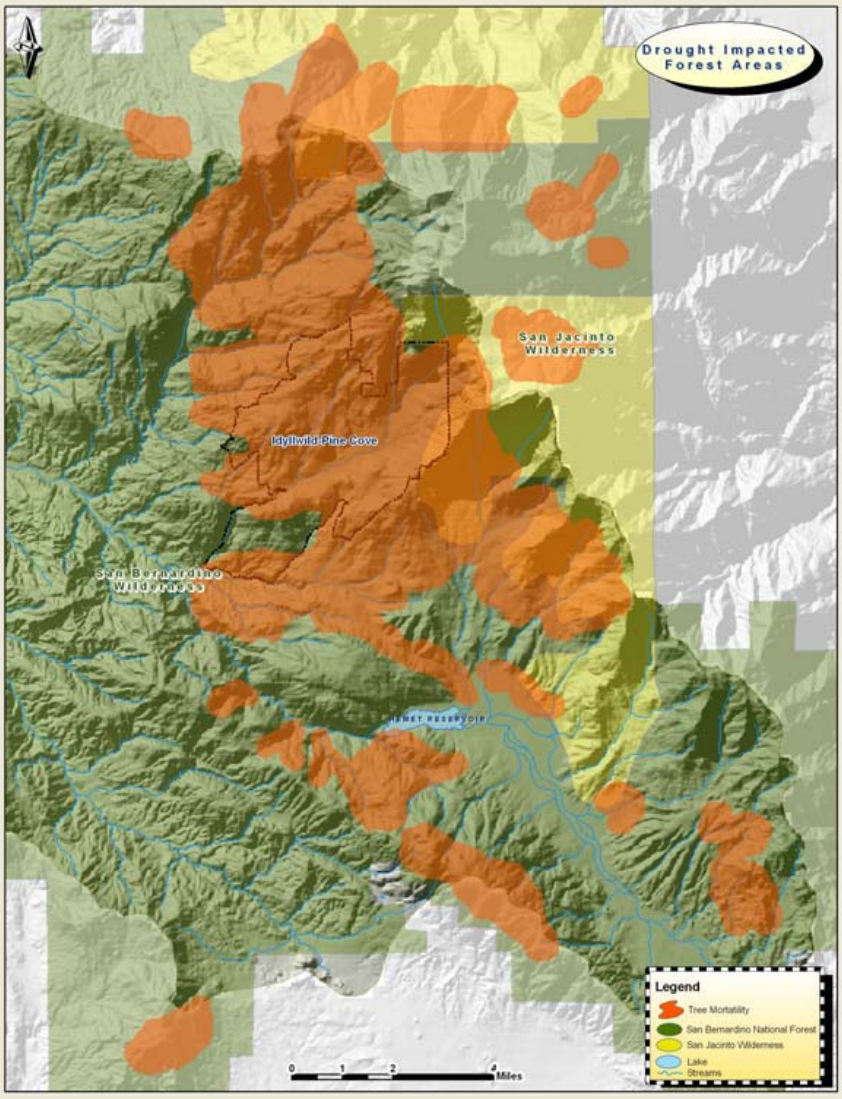
8. And, sedimentation of the lands used by the San Bernardino kangaroo rat and the Santa Ana woolystar and, choking turbidity reducing the useable habitat for the Santa Ana sucker fish.




These impacts are likely to be severe over five or more years depending on rainfall and storm intensity. The estimated cumulative costs to the watershed are estimated to be greater that $800 million, not including fire damage to homes and habitat.

**Funding Recommendations**

In addition to these expected impacts, several funding recommendations are listed to minimize the impacts of the fire to the area and to increase the potential for fire control, life and property protection and a reduction in habitat loss:




1. A dead tree removal matching grant to help fund tree removal on private lands in communities that agree to adopt ordinances, zoning and building codes and planning policies that ensure firewise building and rebuilding. $200 million.

2. Local Forest Service and California Department of Forestry crew augmentations to increase the rate of dead tree removal**.** $5 million for FY 2003 and $6 million for FY 2004.

3. Management planning and outreach for impact reductions and maximal compliance with existing damage minimization measures within the forest and watershed. $1 million FY 2003 and $2 million FY 2004.

4. Pre-fire and post-fire long-term monitoring of forest health, including strategic planning for long-range sustainable forestry practices after fires. $5 million FY 2003 and $7 million FY 2004.

5. Funding for desalting and salt management efforts in the San Jacinto and Santa Ana Watersheds to reduce the impact of salt and contaminants to the watershed. $40 million, grant on $80 million project.

6. Emergency Disaster funding through FEMA to declare a drought emergency to allow the use of FEMA assistance in advance of the fire. Policy Direction Fiscal Impact Unknown.

The following table list significant cost items:

| Impact/Program | Potential Sources | Estimated Cost |
|---|---|---|
| Flood Management Facility Damage and Debris Removal | Federal | $ 65,000,000 |
| Recharge Basin Augmentation and Rehabilitation | Federal/State | $ 20,000,000 |
| Dissolved Solids and Nutrient Removal | Federal/State | $ 80,000,000 |
| Water Treatment for U and Toxics/Organics | Federal | $ 25,000,000 |
| Monitoring for long-term surface and groundwater impacts | Federal | $ 5,000,000 |
| Fuel Removal Matching Grants | Federal/State | $200,000,000 |
| Forest Service and CDF Augmentations | Federal/State | $ 11,000,000 |
| Emergency Disaster Funding | Federal | Unknown |
| Planning, Management and Outreach | Federal | $ 3,000,000 |
| Pre/Post Fire Monitoring | Federal | $ 10,000,000 |

**Requested Action**

Fund the Programs and Impacts above to minimize damage and future costs and prepare to fund actual fire costs as they occur.